Math 251H: Honors Multivariable Calculus

Spring 2016

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Office Hours: Wednesdays 10am-noon and by appointment

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Course Website: math.rutgers.edu/~jp1535/teaching/2017spring_math251
Course Times: 5:00-6:20 Mondays and Wednesdays
Room: BRR-4085
Textbook: *Calculus: Early Transcendentals*, Rutgers Edition, by Jon Rogowski (ISBN: 1-4641-0376-3)

Course Description:

In this course the students will be introduced to the methods of calculus in several variables. We will learn multidimentional derivatives and integrals, line/surface integrals, Green's Theorem, Stoke's Theorem, and the divergence theorem. This is an *Honors Section* of the course, so the exams will be more difficult and the problems discussed will be at a higher level.

Recitation Sections (or Workshops):

Once a week on Thursdays you will meet with the TA as indicated on your schedule. The times and locations are as follows:

Section	Time	Location
H1:	3:20-4:40pm, Thurs.	TIL-103B
H2:	5:00-6:20pm, Thurs.	TIL-103A
H3:	6:40-8:00pm, Thurs.	TIL-103A

During these meetings you will discuss homework questions, work on examples, and take a quiz.

Grading:

Breakdown of grades:

Homework, Maple, and Quizzes	20%
Midterm 1	20%
Midterm 2	20%
Final	40%

Homework:

For the homework in this course we will use the WebAssign system. There will be approximately one homework assignment per week, usually due to be completed on Wednesdays. The WebAssign system can be accessed through the SAKAI page for this course.

Quizzes:

Each Recitation section (on Thursdays) will end with a short quiz. The quiz will generally include questions which are more difficult than the homework questions, and will test your conceptual understanding of the material as well as your ability to perform calculations.

Maple:

This course will also give you the opportunity to get familiar with the very useful program Maple. The first TA section will meet in a computer lab (more details to come) to discuss the first Maple assignment. The following Maple assignments can be accessed on this webpage: http://www.math.rutgers.edu/courses/251/Maple/ and are to be completed outside of class time. The due dates of these assignments will be discussed in class and posted on the course webpage.

Exams:

There will be two midterms and one final exam. The final exam for this class is scheduled for Thursday, December 22nd, 4-7pm.

Tentative Schedule:

Date	Sections	Topics
1/18	12.1, 12.2	Vectors in 2- and 3-dimension
1/23	12.3, 12.4	Dot product and Cross Product of Vectors
1/25	12.5	Planes in 3D
1/30	13.1, 13.2	Vector-valued Functions
2/1	13.3, 13.4	Arc Length, Speed, Curvature
2/6	14.1, 14.2	Multivariable Functions, Limit, Continuity
2/8	14.3, 14.4	Partial Derivatives, Differentiability, Tangent Planes
2/13	14.5	Gradient and Directional Derivatives
2/15	14.6	The Chain Rule
2/20	14.7	Optimization of Multivariable Function
2/22	14.8	Lagrange Multiplier
2/27	Midterm 1	
3/1	15.1	Integration of Multivariable Function
3/6	15.2	Double Integral Over General Regions
3/8	15.3	Triple Integral
3/20	12.7	Cylindrical and Spherical Coordinates
3/22	15.4	Integration in Polar, Cylindrical, and Spherical Coordinates
3/27	15.6	Change of Variables
3/29	16.1	Vector Fields
4/3	16.2	Line Integrals
4/5	16.3	Conservative Vector Fields
4/10	Midterm 2	
4/12	16.4	Surface Integrals
4/17	16.5	Surface Integrals of Vector Fields
4/19	17.1	Green's Theorem
4/24	17.2	Stokes' Theorem
4/26	17.3	Divergence Theorem
5/1	Review/Catch up	
5/5	FINAL EXAM (4-7pm in BRR-4085)	

SAKAI:

For this course I will be using the SAKAI gradebook, so you can log onto this page to see your current grade in the course. Please inform me of any discrepancies between the grades you think you got and your grades on SAKAI immediately.

Integrity:

You are encouraged to discuss problems pertaining to this course and examples from class with your classmates, but you should complete the WebAssign assignment independently. Remember you will be alone for the exams, which are the majority of your grade, so the WebAssign problems should be approached as important practice. Of course, I will not tolerate any cheating during the midterms or the final. See academicintegrity.rutgers.edu for more details about the academic integrity policies at Rutgers.

Disability:

If you have a disability, please coordinate with the Office of Disability Services as early as possible in the semester and I will do my best to accommodate your needs.

Further Questions?

If you have any questions about this course, please do not hesitate to email me or come to my office hours.